MODE	DATA RATE (Mbps)	TARGET APPLICATION	RECEIVER SENSITIVITY	POWER CONSUMPTION ('2001)	
				Rx AVERAGE	Tx AVERAGE
MODE 1.0 (BLUETOOTH)	1 Mbps		-84 dBm	25 mW	15 mW
MODE 2.0	2.6-3.9 Mbps	AUDIO	-78 dBm	30 mW	20 mW
MODE 3.0	22-44 Mbps	VIDEO, COMPUTER GRAPHICS	-69 dBm	95 mW	60 mW

FIG. 1

EP 1 524 809 A2

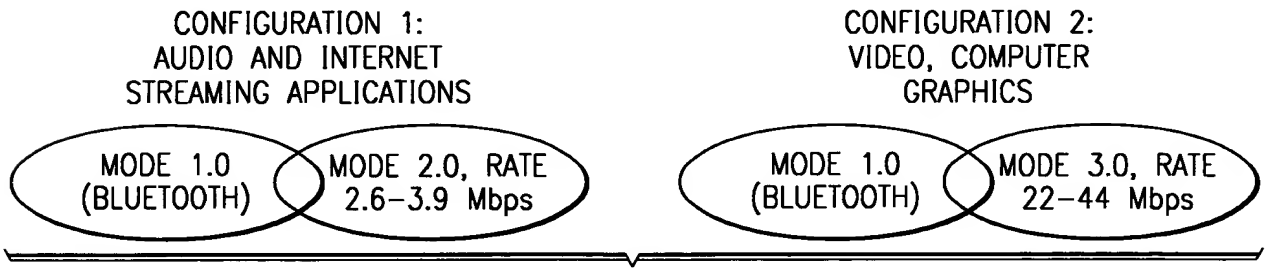

FIG. 2

FREQUENCY OFFSET	TRANSMIT POWER
+/- 550 kHz	-20 dBc
|M-N|=2	-20 dBm
|M-N|>=3	-40 dBm

FIG. 4

PARAMETERS	MODE 1 (BLUETOOTH)	MODE 2
FREQUENCY HOPPING	1600 Hz	SAME AS BLUETOOTH
FILTER SPECTRUM		SAME AS BLUETOOTH
MODULATION	GFSK	16, 64 QAM
MAXIMUM DATA RATE	1 Mbps	2.6, 3.9 Mbps
ACQUISITION		USING MODE 1 THEN SWITCH TO MODE 2
TRANSMIT POWER	0 dBm	0 dBm, 6 dBm
DISTANCE	10 m	10 m
NOMINAL PACKET ERROR RATE	10%	10%
MARGIN + NOISE FIGURE	37 dB	37 dB
RECEIVER SENSITIVITY	−84 dBm	−84, −78 dBm
CODING	ARQ	ARQ + CONVOLUTIONAL CODE ACROSS PACKETS

FIG. 3

PDEP40 20227460

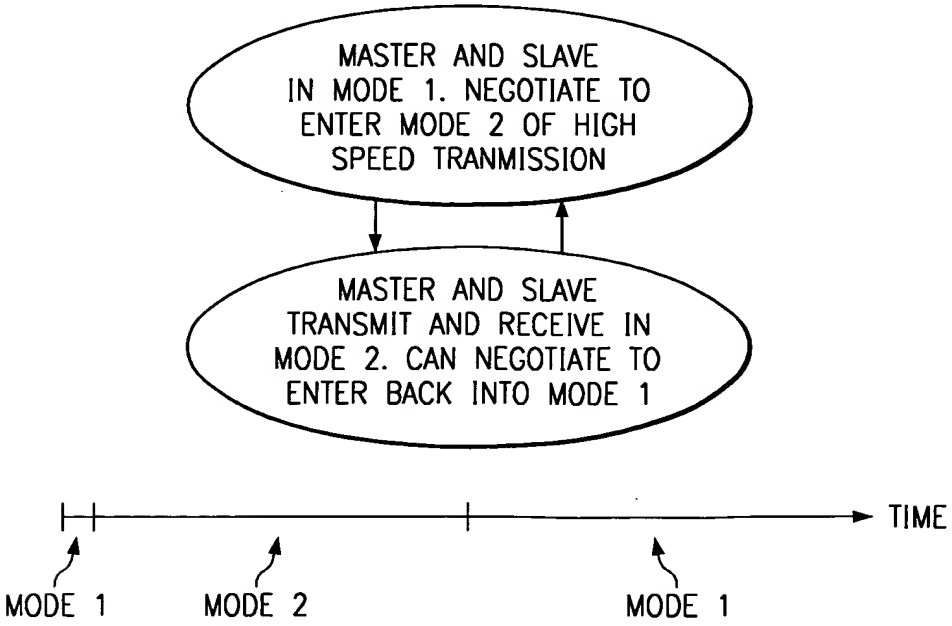

FIG. 5

LSB	20 SYMBOLS	32 SYMBOLS	27 SYMBOLS	0-1780 SYMBOLS	MSB
	PREAMBLE 30.8 μsec	SYNC WORD 49.2 μsec	HEADER 41.5μsec	PAYLOAD 0-2738 μsec	
	20 BITS	64 BITS	54 BITS	0-7120 BITS FOR 16 QAM 0-10680 BITS FOR 64 QAM	

FIG. 6

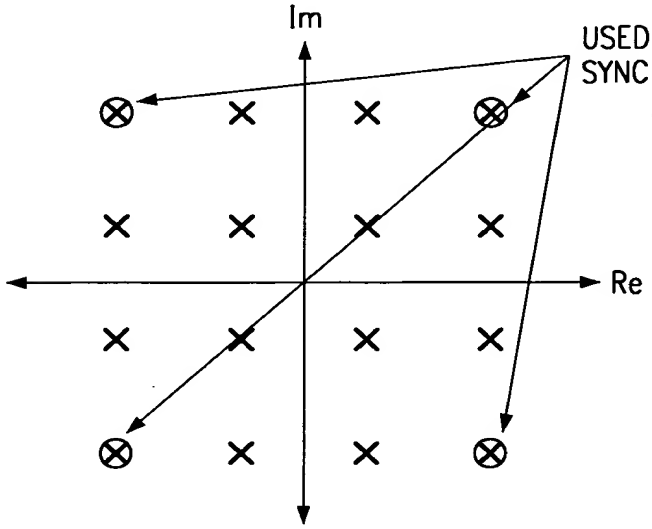

FIG. 6A

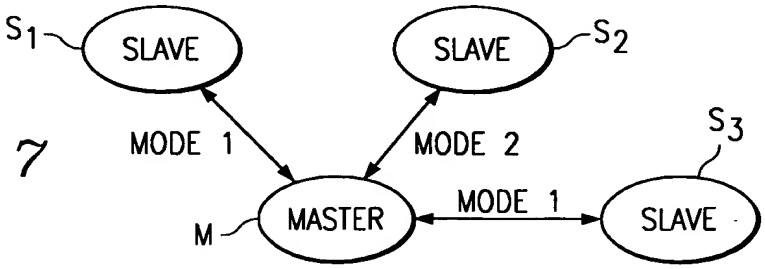

FIG. 7

M	S_1	M	S_2	M	S_3	M	S_1	M	S_2	M	S_3
MODE 1	MODE 1	MODE 2	MODE 2	MODE 1	MODE 1	MODE 1	MODE 1	MODE 2	MODE 2	MODE 1	MODE 1

TIME

FIG. 8

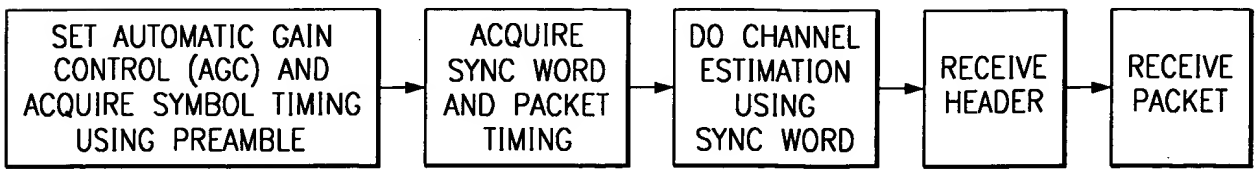

FIG. 9

EXPRESS MAIL NO. EL627603054US

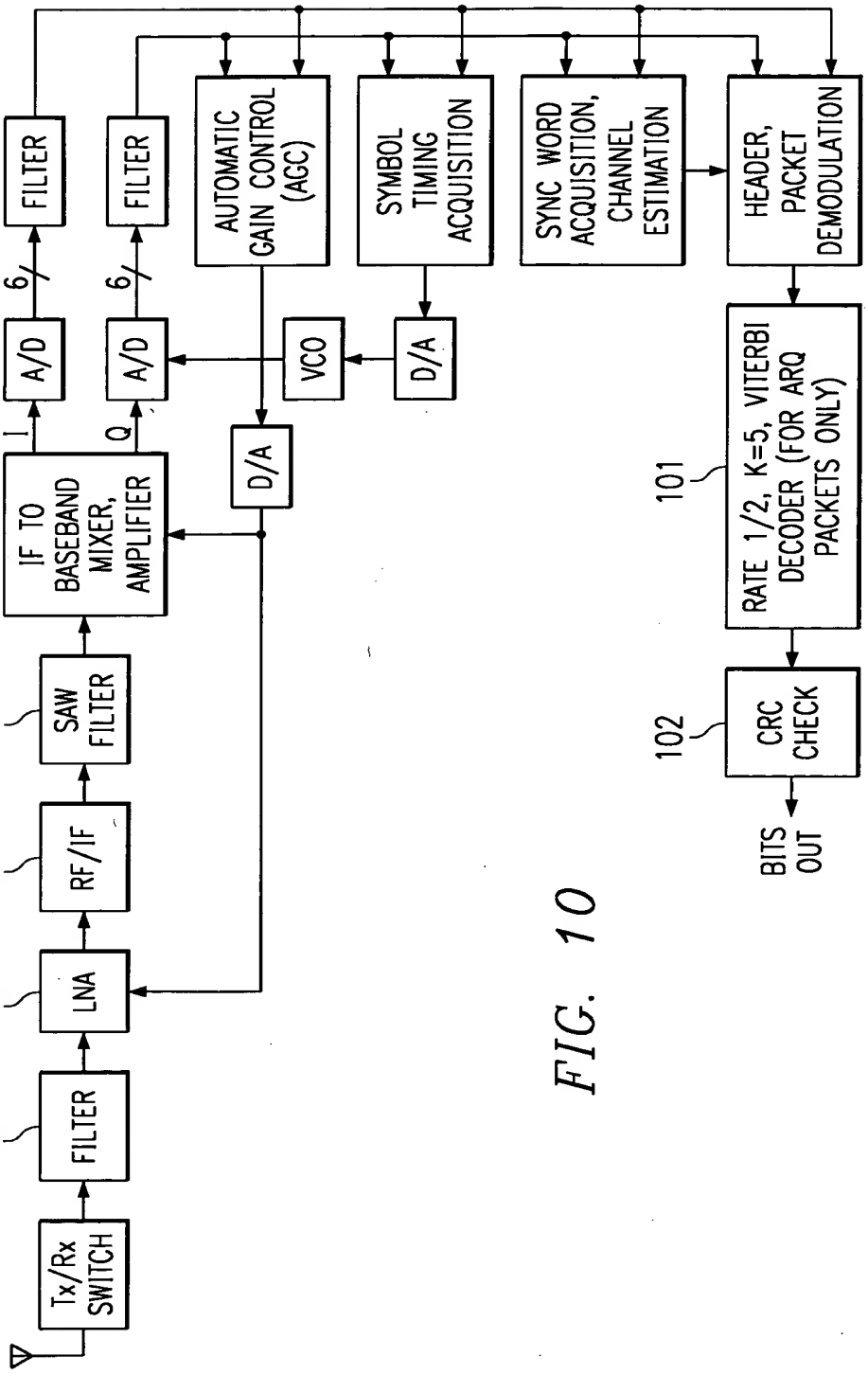
Tx/Rx SWITCH
FILTER
LNA
RF/IF
SAW FILTER
IF TO BASEBAND MIXER, AMPLIFIER
A/D
A/D
FILTER
FILTER
6
6
I
Q
D/A
VCO
D/A
AUTOMATIC GAIN CONTROL (AGC)
SYMBOL TIMING ACQUISITION
SYNC WORD ACQUISITION, CHANNEL ESTIMATION
HEADER, PACKET DEMODULATION
RATE 1/2, K=5, VITERBI DECODER (FOR ARQ PACKETS ONLY)
CRC CHECK
BITS OUT
105
106
107
108
101
102

FIG. 10

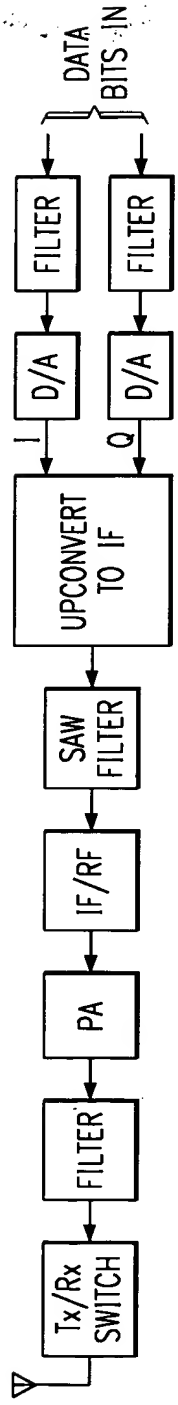
DATA BITS IN
FILTER
FILTER
D/A
D/A
I
Q
UPCONVERT TO IF
SAW FILTER
IF/RF
PA
FILTER
Tx/Rx SWITCH

FIG. 11

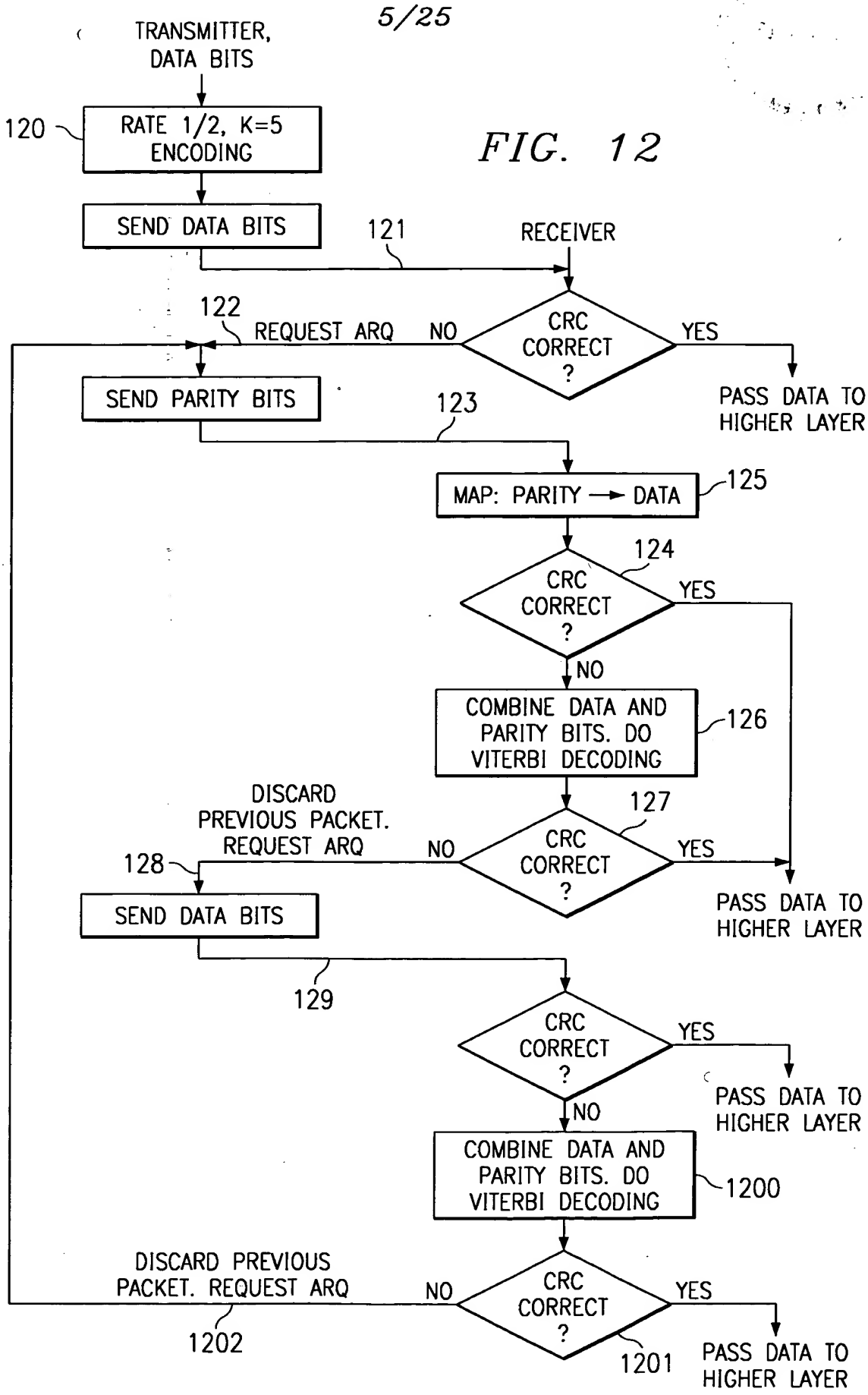

FIG. 12

EP 0 924 903 A2

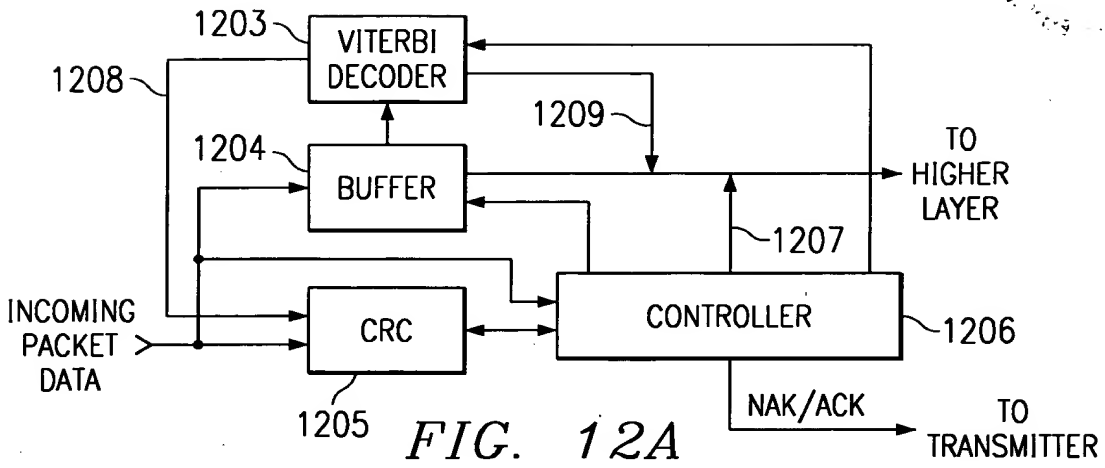

FIG. 12A

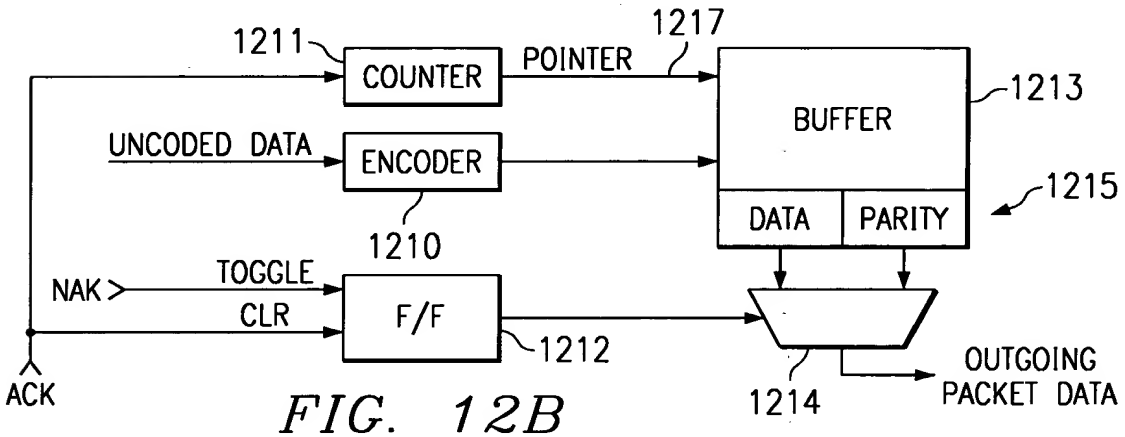

FIG. 12B

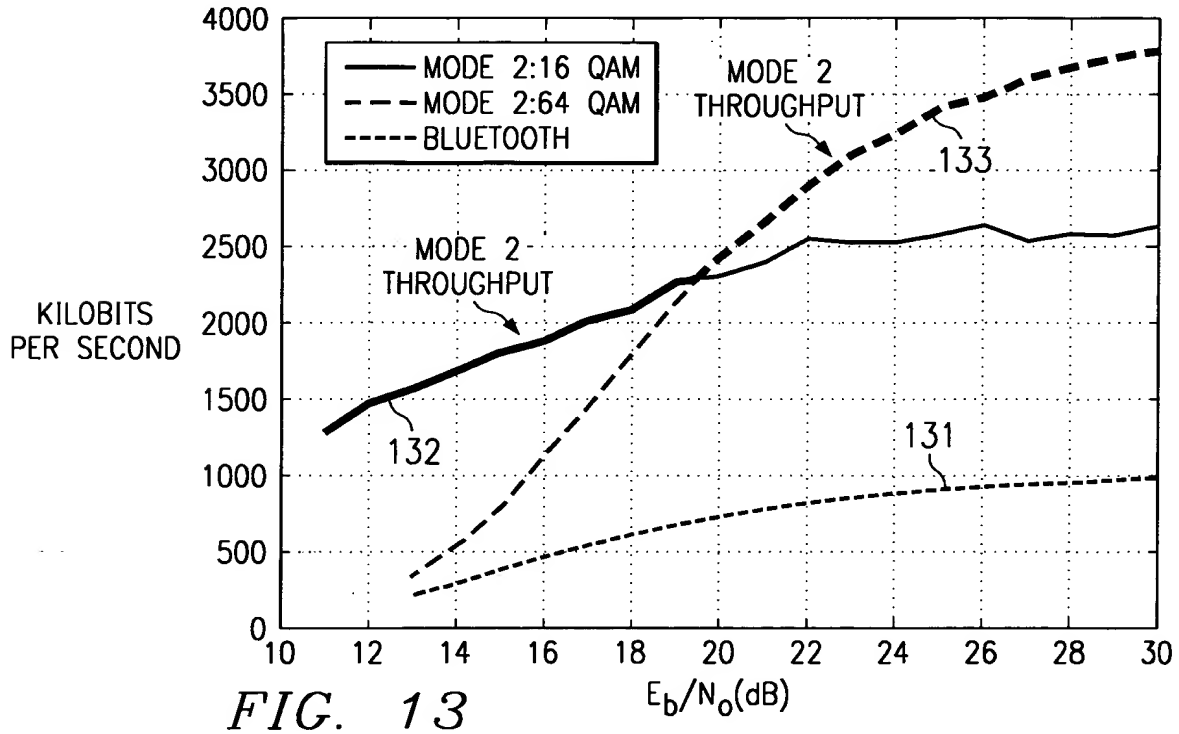

FIG. 13

FOE2H0 E02Z260

PARAMETERS	1	2	3	4	5
FILTER SPECTRUM	802.11b	802.11b	802.11b	802.11b	802.11b
MODULATION	QPSK	QPSK	16 QAM	16 QAM	16 QAM
SCRAMBLING CODE LENGTH	256	256	256	256	256
PHYSICAL DATA RATE	22 Mbps	22 Mbps	44 Mbps	44 Mbps	44 Mbps
CODING	RATE 1/2, TURBO (SCCC)	NONE	RATE 1/2, TURBO (SCCC)	RATE 3/4, TURBO (SCCC)	NONE
ARQ	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
MAXIMUM DATA RATE	11 Mbps	22 Mbps	22 Mbps	33 Mbps	44 Mbps
TRANSMIT POWER	−1 dBm	8 dBm	4 dBm	8 dBm	15 dBm
DISTANCE	10 m	10 m	10 m	10 m	10 m
BIT ERROR RATE	1e−8	1e−8	1e−8	1e−8	1e−8
PACKET ERROR RATE	1e−4	1e−4	1e−4	1e−4	1e−4
MARGIN + NOISE FIGURE	37 dB	37 dB	37 dB	37 dB	37 dB
RECEIVER SENSITIVITY	−85 dBm	−76 dBm	−80 dBm	−76 dBm	−69 dBm
FREQUENCY DIVERSITY	BAND SELECTION	BAND SELECTION	BAND SELECTION	BAND SELECTION	BAND SELECTION
SYMBOL RATE	11 Msps	11 Msps	11 Msps	11 Msps	11 Msps
SPREADING	11 Mcps	11 Mcps	11 Mcps	11 Mcps	11 Mcps

FIG. 14

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	MAXIMUM DATA RATE	MODULATION	SYMBOL RATE	CODING	SPREADING
18	18 Mbps	QPSK	18 Msps	RATE 1/2	18 Mchips/sec
19	36 Mbps	QPSK	18 Msps	RATE 1	18 Mchips/sec
20	36 Mbps	16 QAM	18 Msps	RATE 1/2	18 Mchips/sec
21	54 Mbps	16 QAM	18 Msps	RATE 3/4	18 Mchips/sec
22	72 Mbps	16 QAM	18 Msps	RATE 1	18 Mchips/sec

FIG. 14A

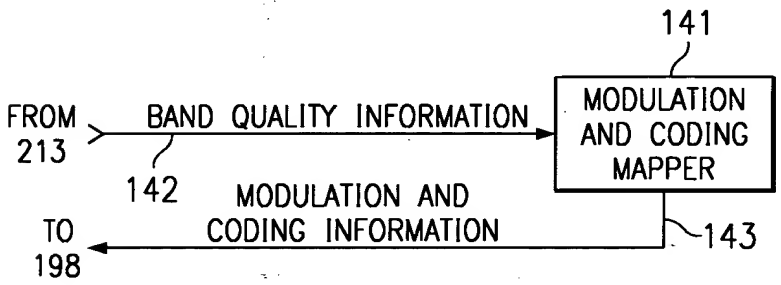


FIG. 14B

PARAMETERS	6	7	8	9	10
FILTER SPECTRUM	802.11b	802.11b	802.11b	802.11b	802.11b
MODULATION	QPSK	QPSK	QPSK	QPSK	QPSK
SCRAMBLING CODE LENGTH	256	256	256	256	256
PHYSICAL DATA RATE	22 Mbps	22 Mbps	22 Mbps	22 Mbps	22 Mbps
CODING	RATE 1/2, TURBO	RATE 2/3, TURBO	RATE 3/4, TURBO	RATE 4/5, TURBO	RATE 5/6, TURBO
ARQ	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
MAXIMUM DATA RATE	11 Mbps	14.67 Mbps	16.5 Mbps	17.6 Mbps	18.33 Mbps

FIG. 14C

EP 1 294 204 A2

TOE2h0" E0277760

PARAMETERS	11	12	13	14	15	16	17
FILTER SPECTRUM	802.11b	802.11b	802.11b	802.11b	802.11b	802.11b	802.11b
MODULATION	8-PSK	8-PSK	8-PSK	8-PSK	8-PSK	8-PSK	8-PSK
SCRAMBLING CODE LENGTH	256	256	256	256	256	256	256
PHYSICAL DATA RATE	33 Mbps	33 Mbps	33 Mbps	33 Mbps	33 Mbps	33 Mbps	33 Mbps
CODING	NONE	RATE 1/3, TURBO	RATE 1/2, TURBO	RATE 2/3, TURBO	RATE 3/4, TURBO	RATE 4/5, TURBO	RATE 5/6, TURBO
ARQ	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
MAXIMUM DATA RATE	33 Mbps	11 Mbps	16.5 Mbps	22 Mbps	24.75 Mbps	26.4 Mbps	27.5 Mbps

FIG. 14D

FREQUENCY OFFSET	TRANSMIT POWER
fc	0 dBc
+/- 11 MHz	-30 dBc
+/- 22 MHz	-50 dBm

FIG. 15

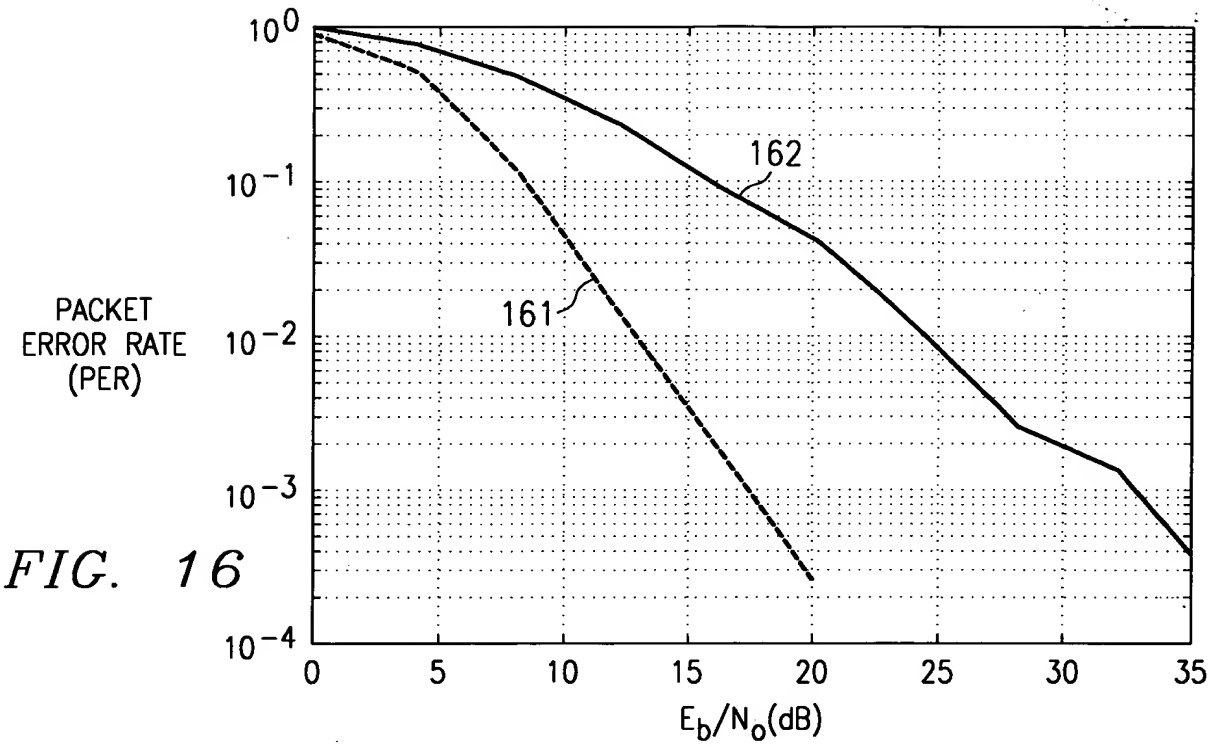


FIG. 16

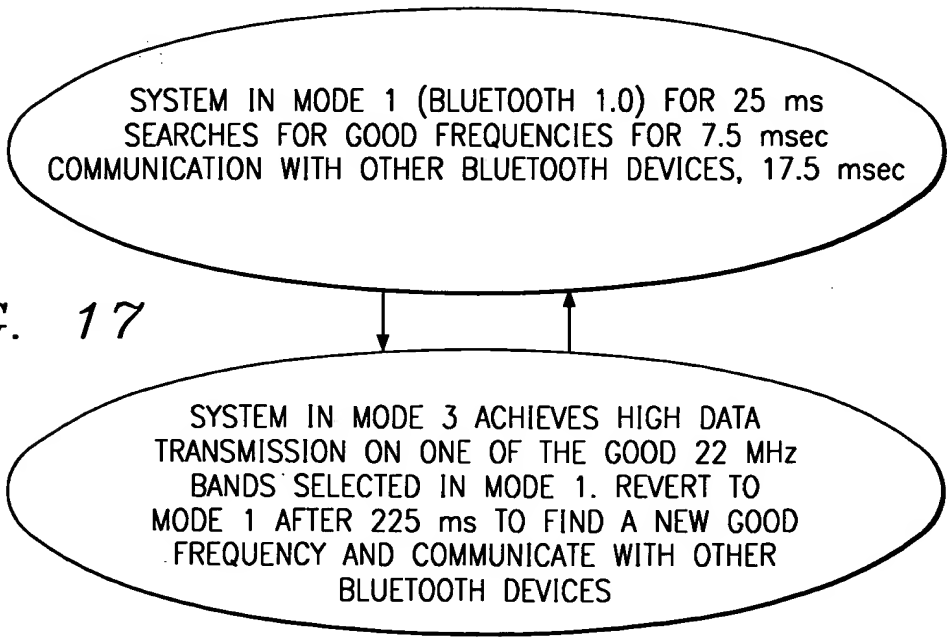


FIG. 17

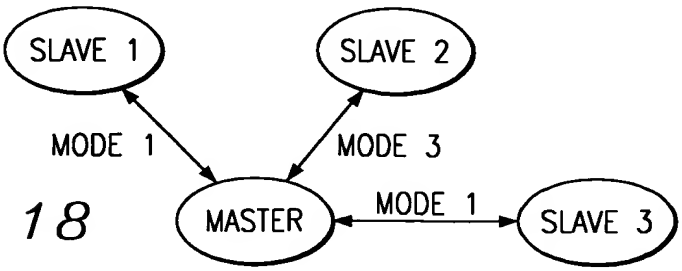


FIG. 18

TOE2HO: 03227260

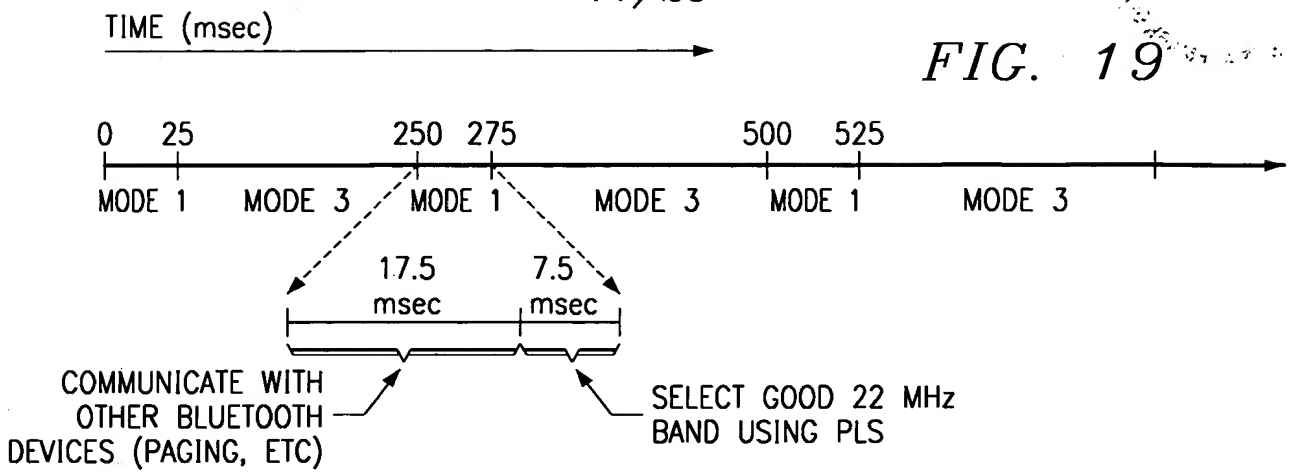


FIG. 19

09/274,260 04-23-01

FIG. 19A

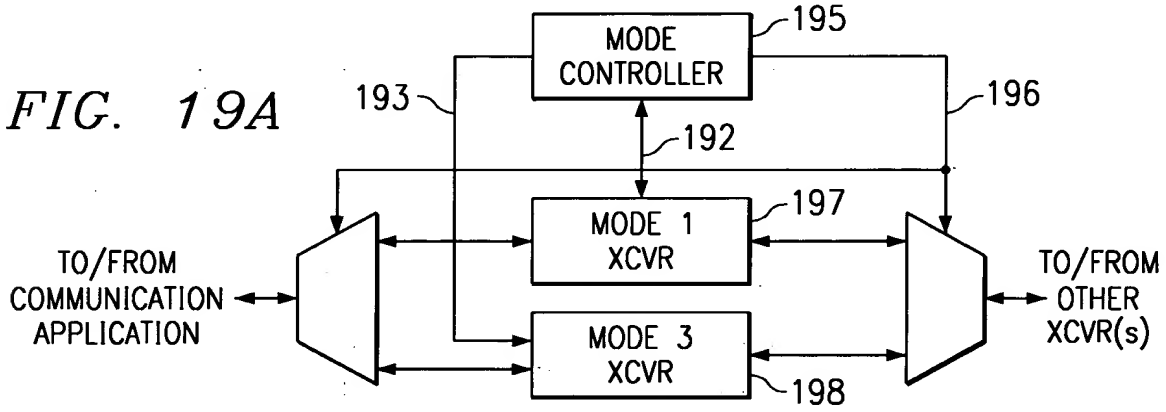
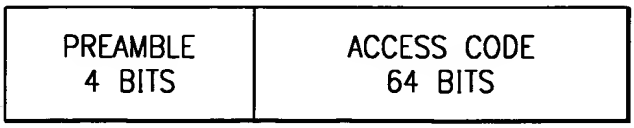


FIG. 20



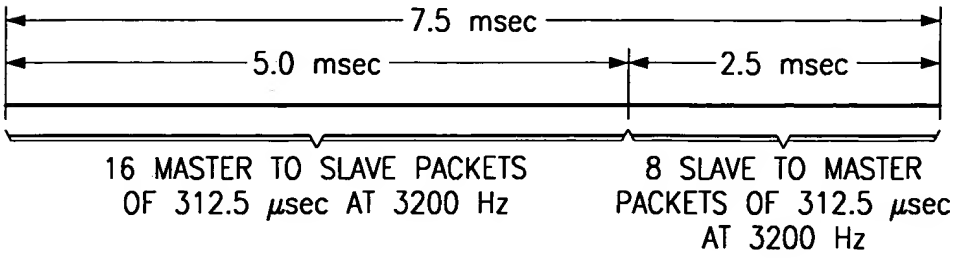


FIG. 21

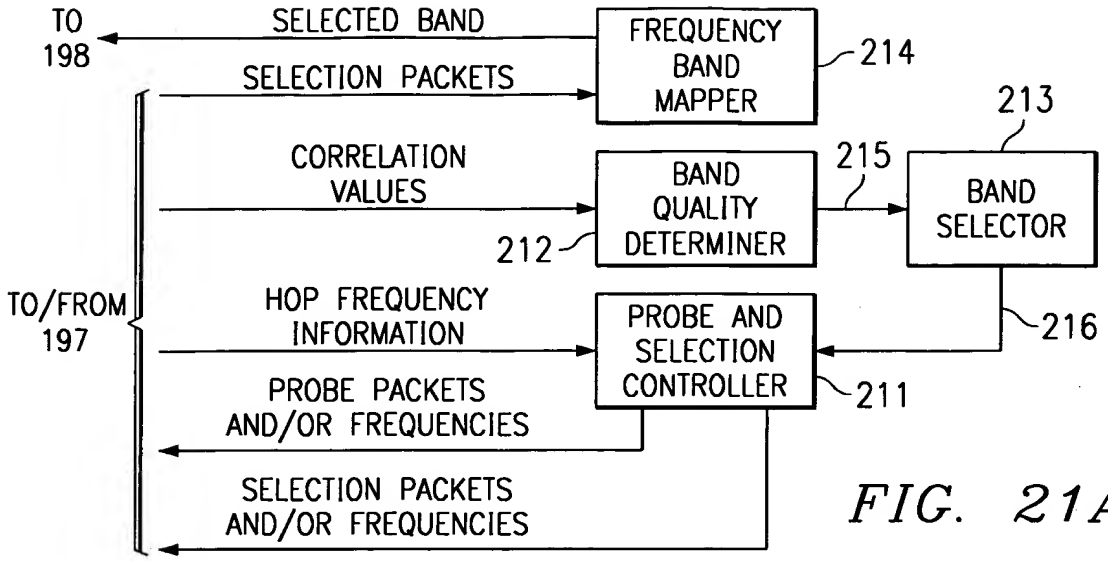


FIG. 21A

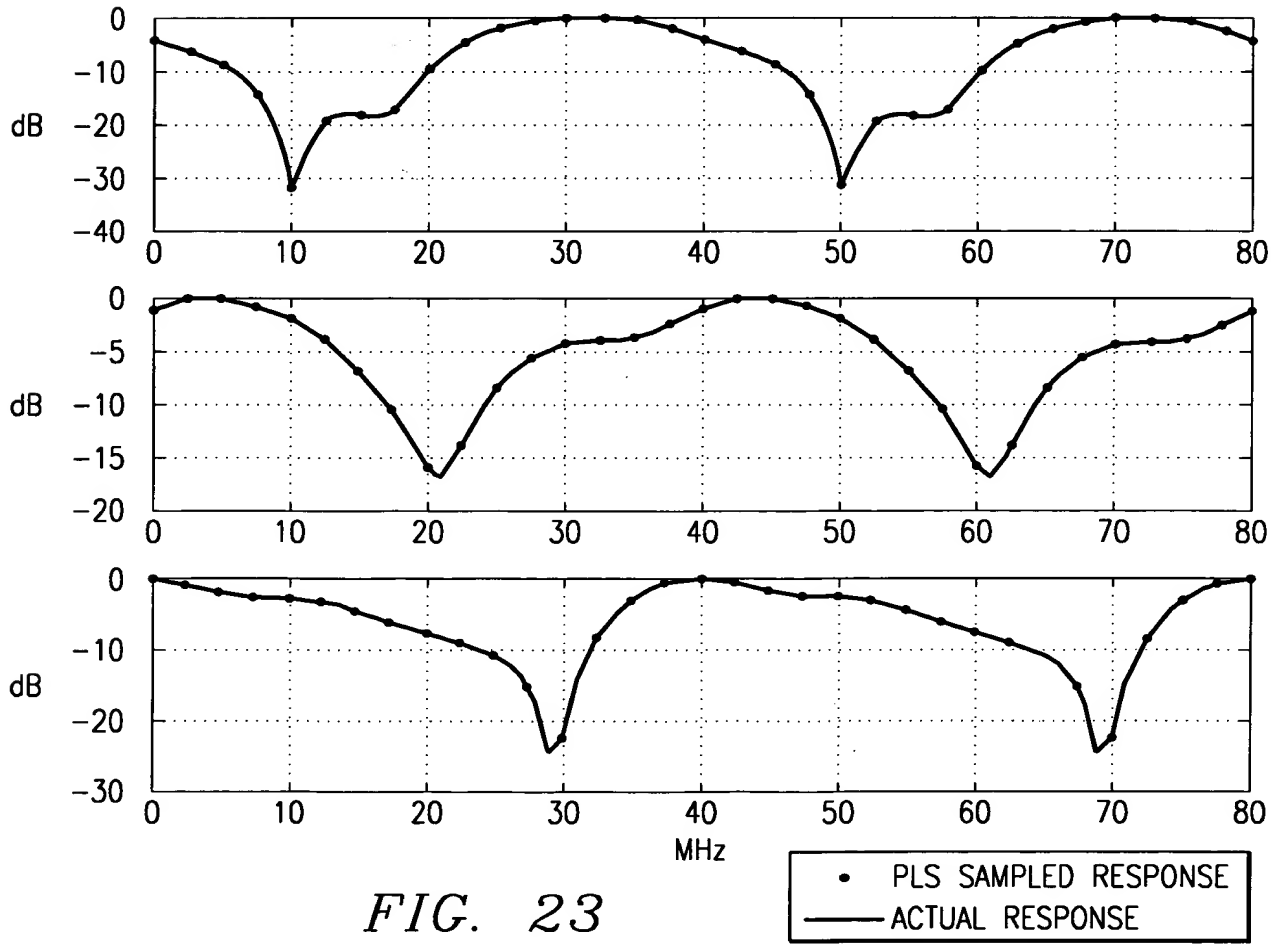


FIG. 23

TI-31284 EP02726

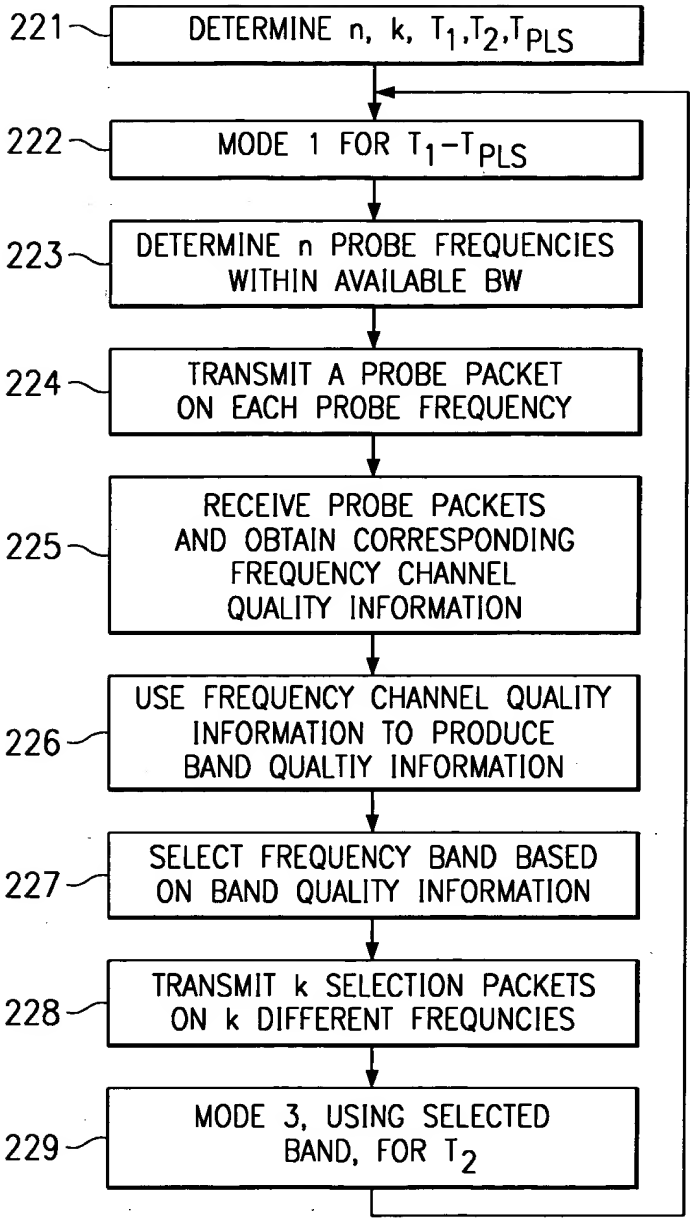


FIG. 21B

PREAMBLE 4 BITS	ACCESS CODE 64 BITS	CHANNEL EDGE FREQUENCY INDEX 6*3=18 BITS

FIG. 22

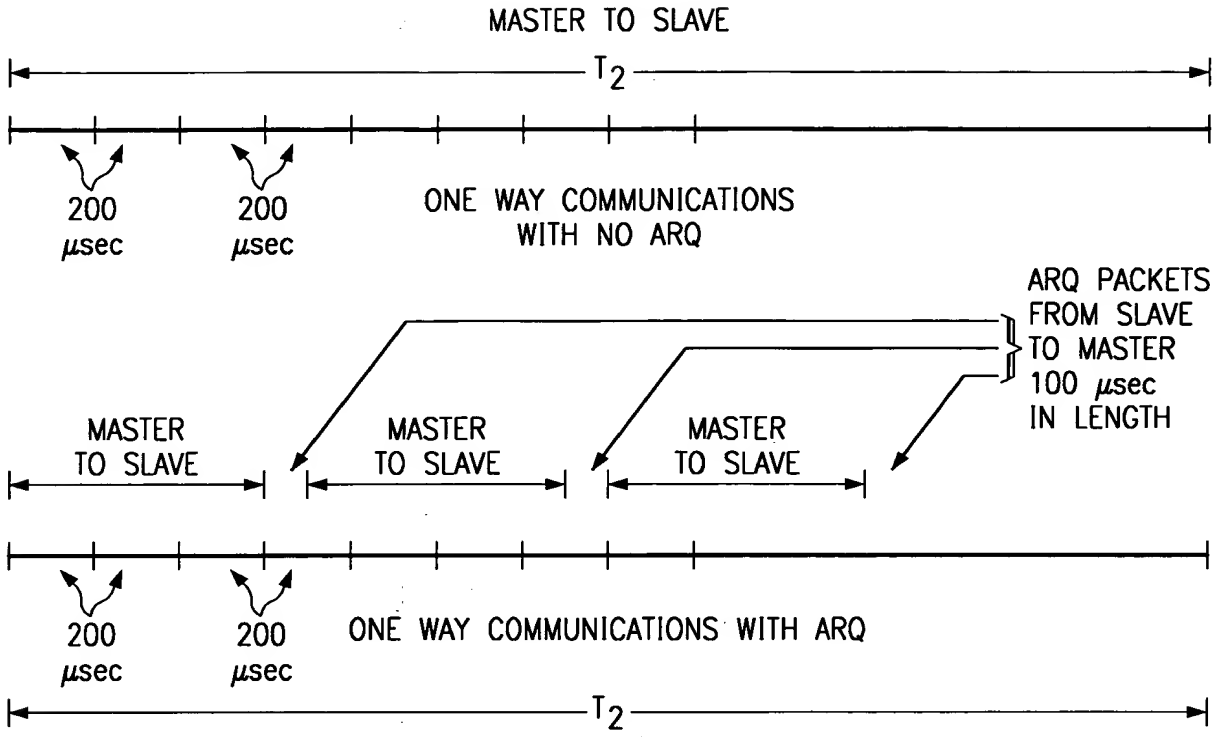


FIG. 24

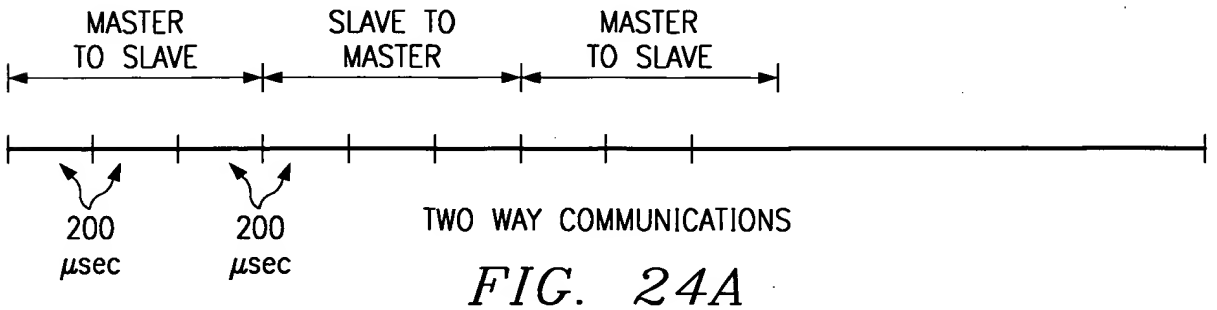


FIG. 24A

EP 0 927 504 A2

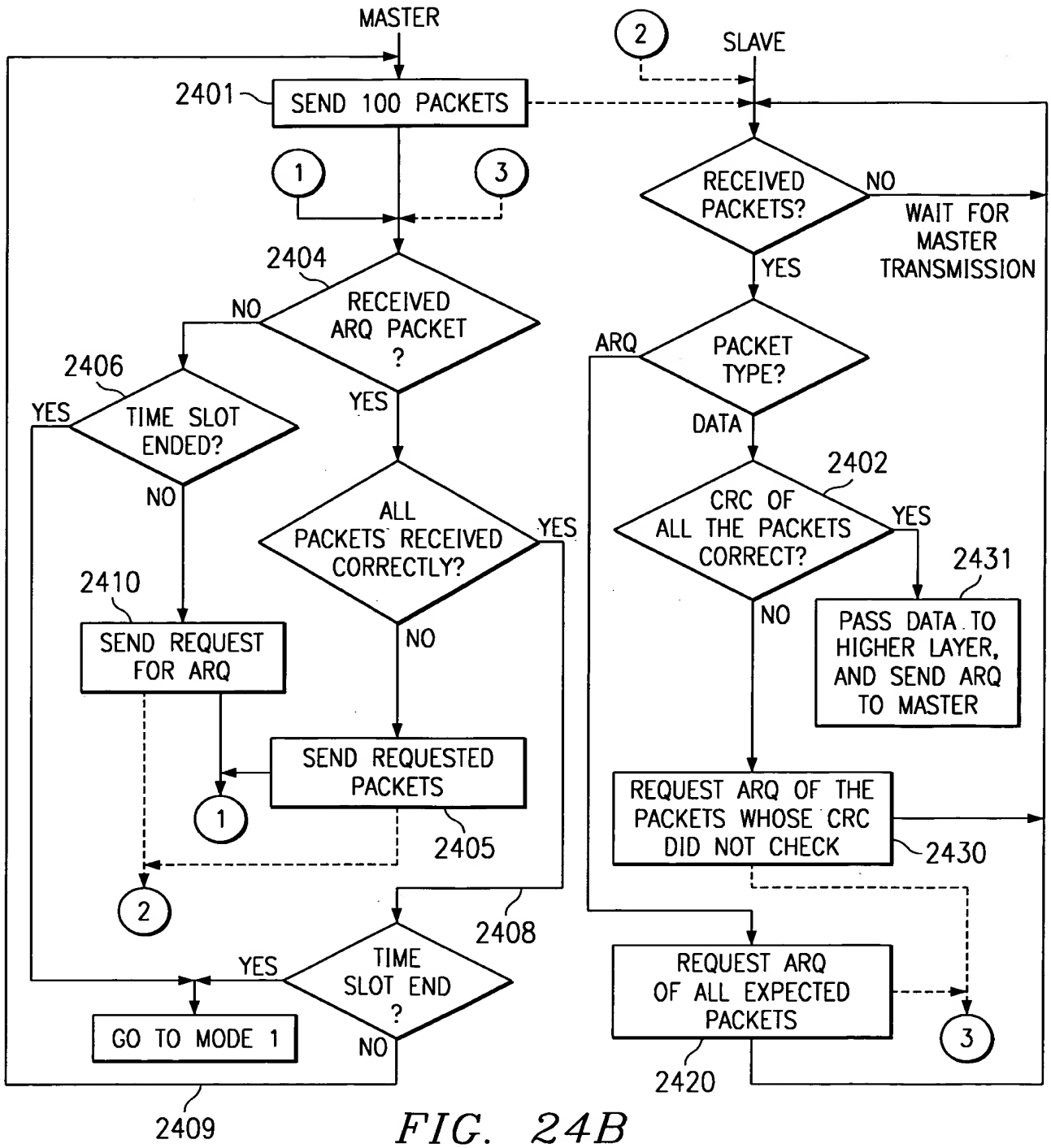


FIG. 24B

09/727,304 - 042304

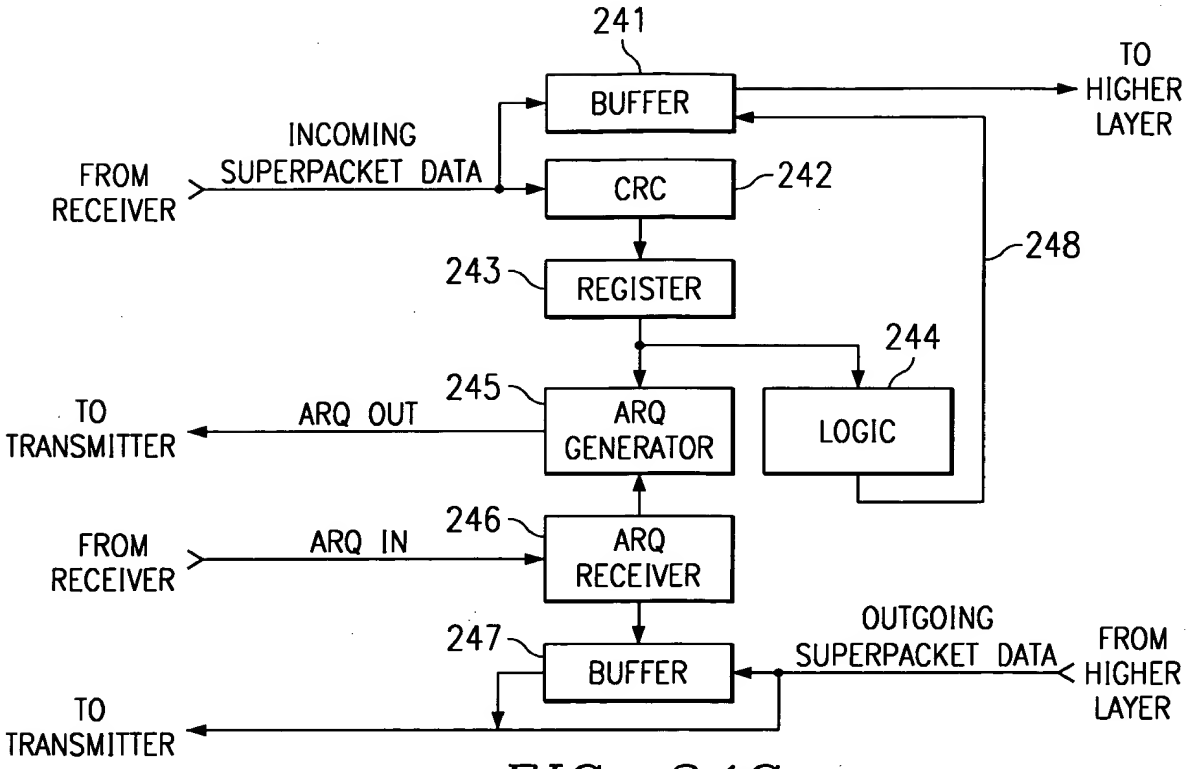


FIG. 24C

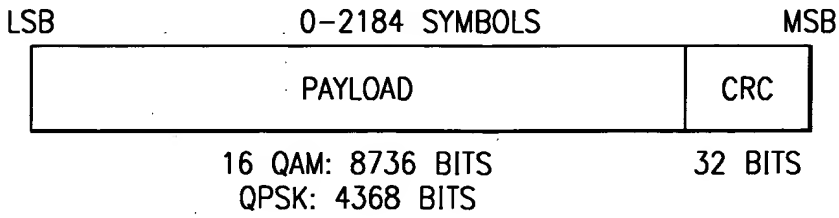


FIG. 25

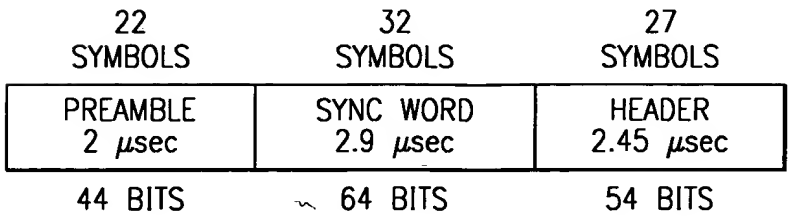


FIG. 26

EP 2 034 650 A1 09.03.2009

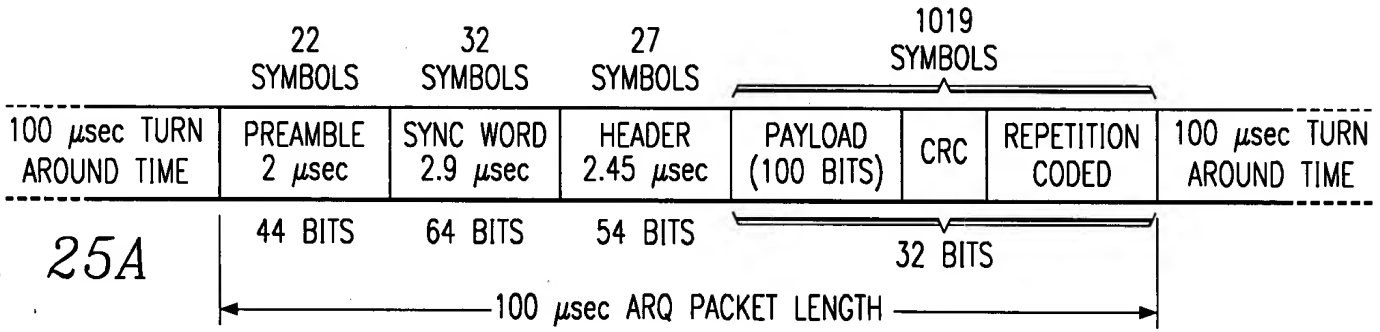


FIG. 25A

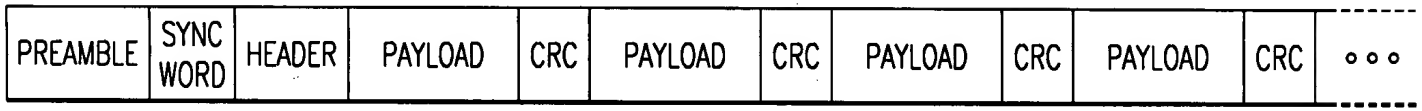


FIG. 27

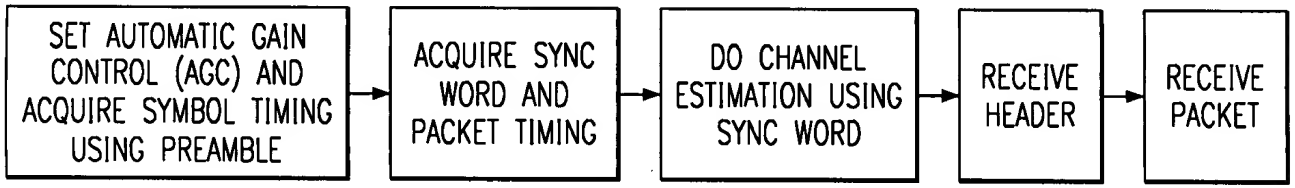


FIG. 29

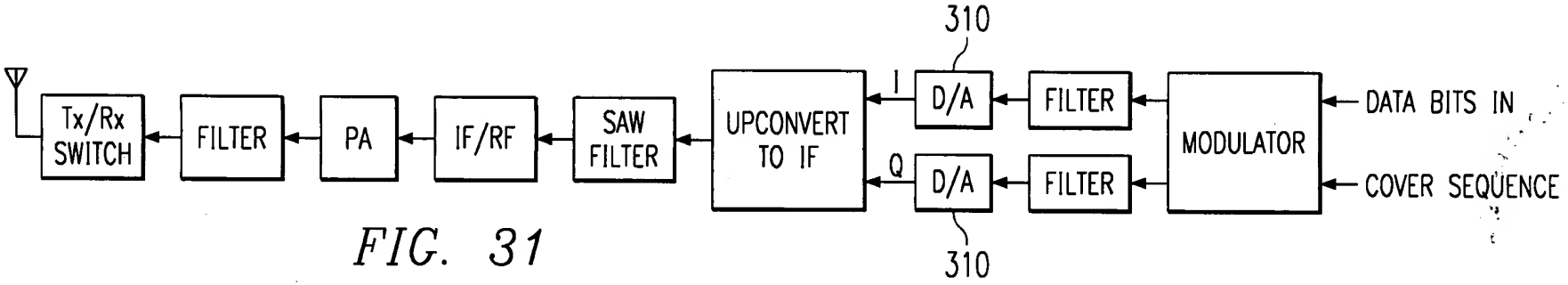


FIG. 31

MPEG2 HDTV VIDEO TRANSMISSION USING MODE 3	
VIDEO DATA RATE	18 Mbps
VIDEO FRAMES/SEC	24
VIDEO FRAMES/MODE 3 SLOT	6
MODE 3 DATA RATE	44 Mbps, 11 MSPS
CODING	RATE 1/2, TURBO
MODULATION	16 QAM
TIME IN BLUETOOTH MODE (T_1 msec)	25 msec
TIME IN BLUETOOTH MODE FOR OTHER DEVICES	17.5 msec
TIME IN BLUETOOTH MODE FOR PAL	7.5 msec
SLOT TIME IN MODE 3 (T_2 msec)	225 msec
MODE 3 PACKET SIZE	4.4 Kbits
DATA BITS/PACKET	4368
CRC BITS/PACKET	32
MODE 3 PACKET LENGTH	200 μsec
NUMBER OF PACKETS/SLOT	1030
LENGTH OF TRAINING SEQUENCE	81 SYMBOLS, 7.36 μsec
NUMBER OF PACKETS/TRAINING SEQUENCE	10
NUMBER OF PACKETS/ARQ	100
NUMBER OF TRAINING SEQUENCES/PACKET	103
TIME REQUIRED TO TRANSMIT VIDEO FRAMES (NO ARQ)	204.5+1.5+0.76=206.76 msec
ARQ RATE	9%
TIME REQUIRED TO TRANSMIT VIDEO FRAMES WITH ARQ	225 msec

FIG. 28

EP 1 263 203 A2

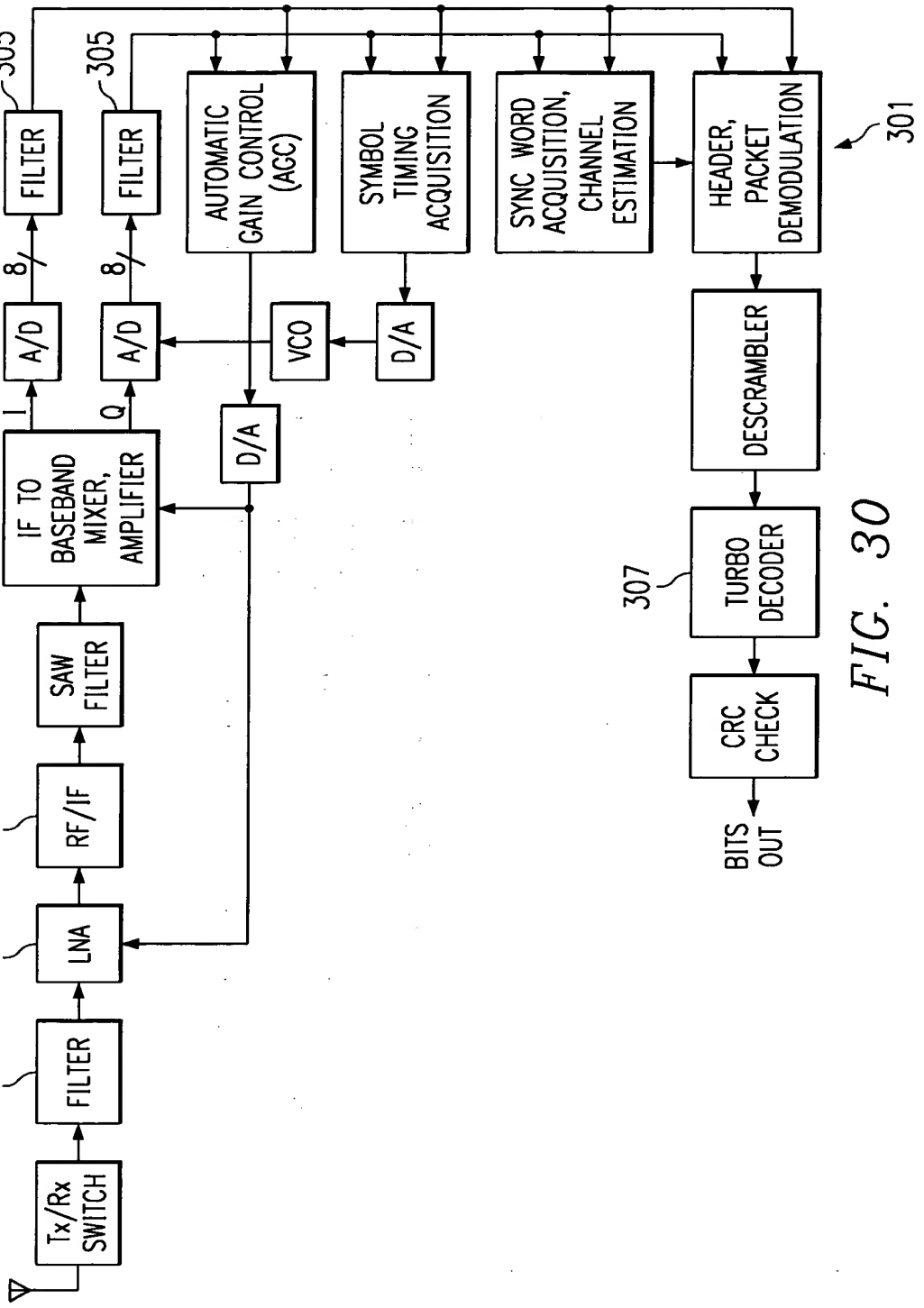

Tx/Rx SWITCH
FILTER
LNA
RF/IF
SAW FILTER
IF TO BASEBAND MIXER, AMPLIFIER
A/D
A/D
FILTER
FILTER
8
8
I
Q
D/A
VCO
D/A
AUTOMATIC GAIN CONTROL (AGC)
SYMBOL TIMING ACQUISITION
SYNC WORD ACQUISITION, CHANNEL ESTIMATION
HEADER, PACKET DEMODULATION
DESCRAMBLER
TURBO DECODER
CRC CHECK
BITS OUT
308
306
302
305
305
307
301

FIG. 30

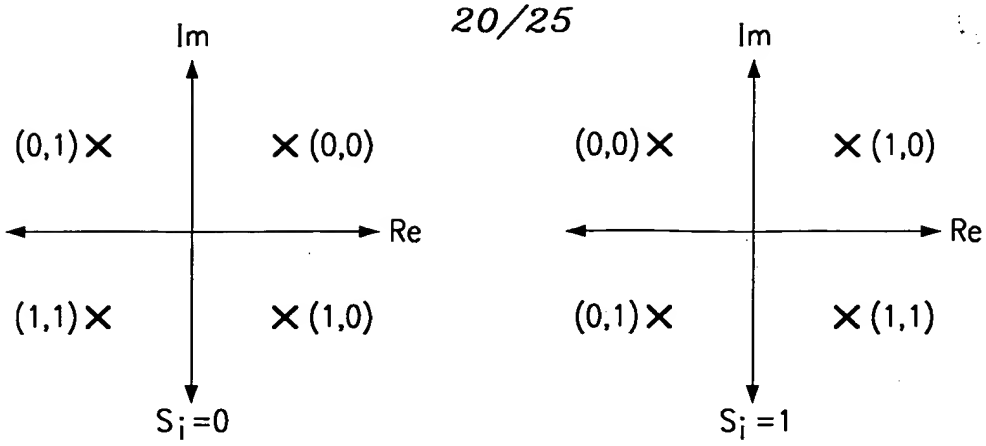


FIG. 32

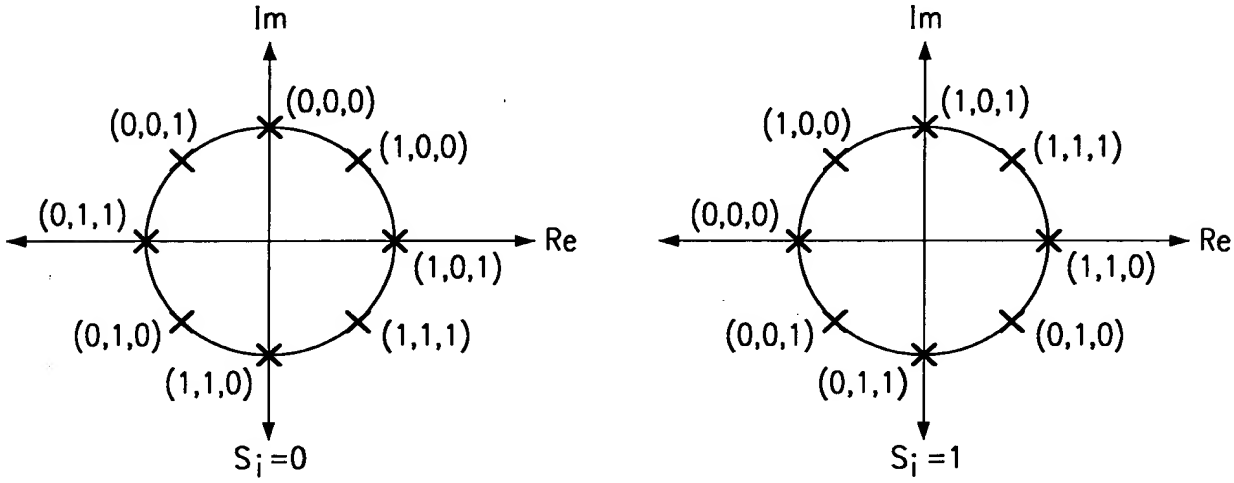


FIG. 32A

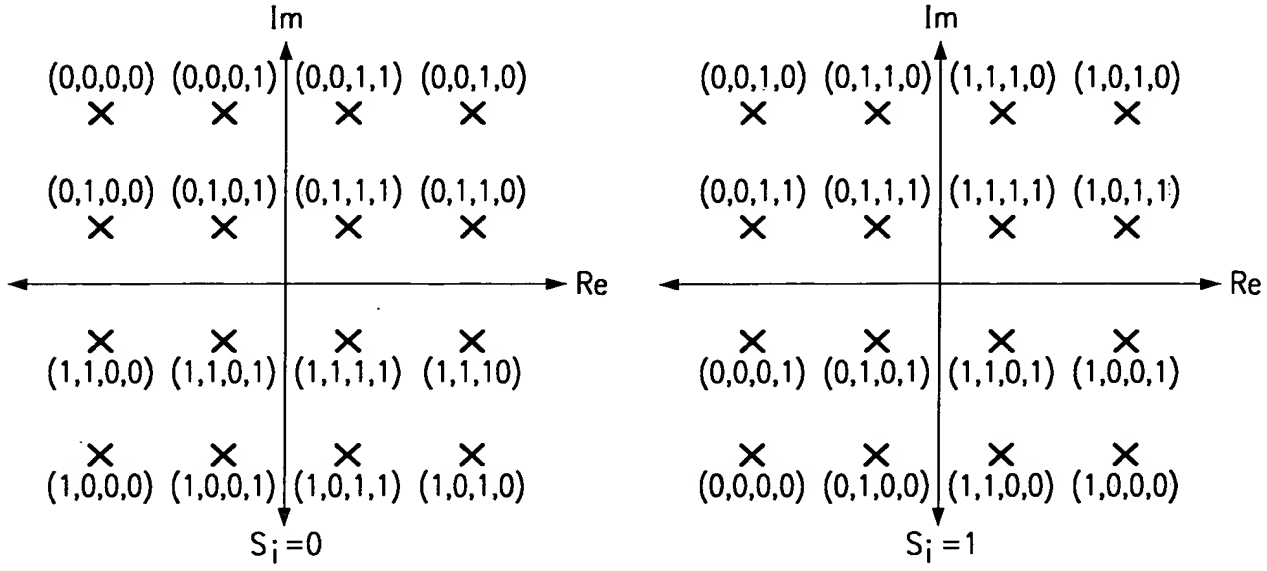


FIG. 33

EQ2470 '60227250

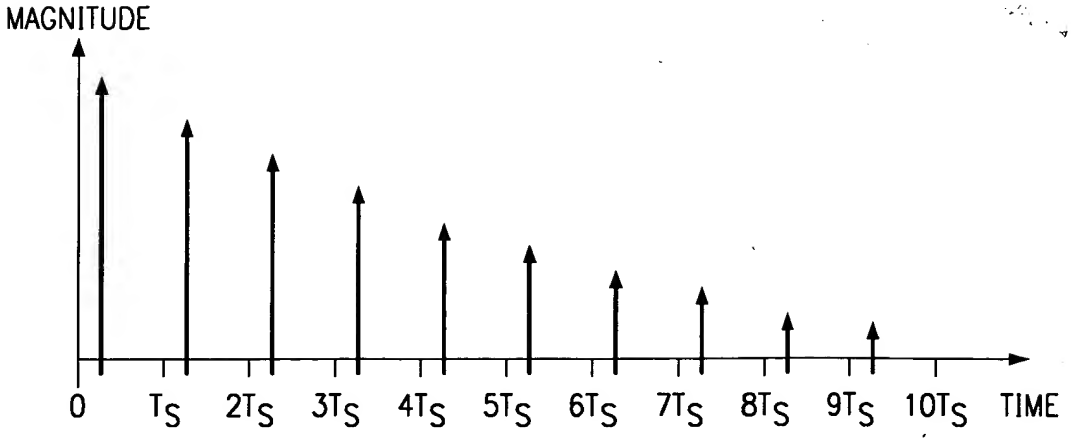


FIG. 34

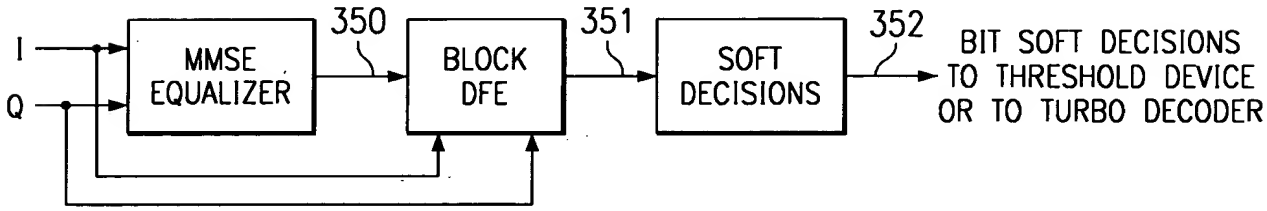


FIG. 35

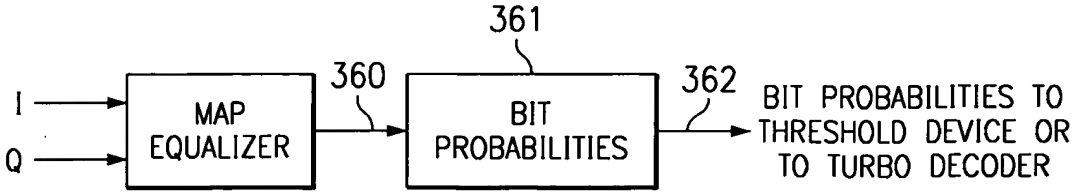


FIG. 36

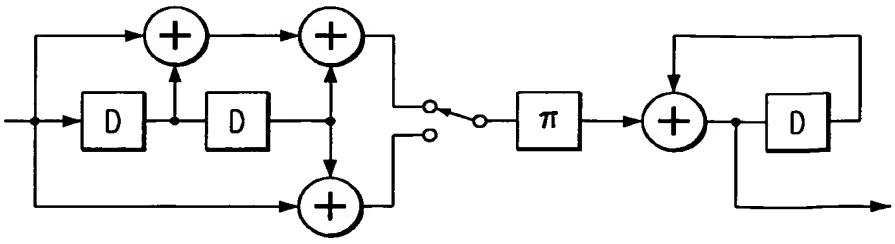


FIG. 37

EP 1 324 509 A2 20030702

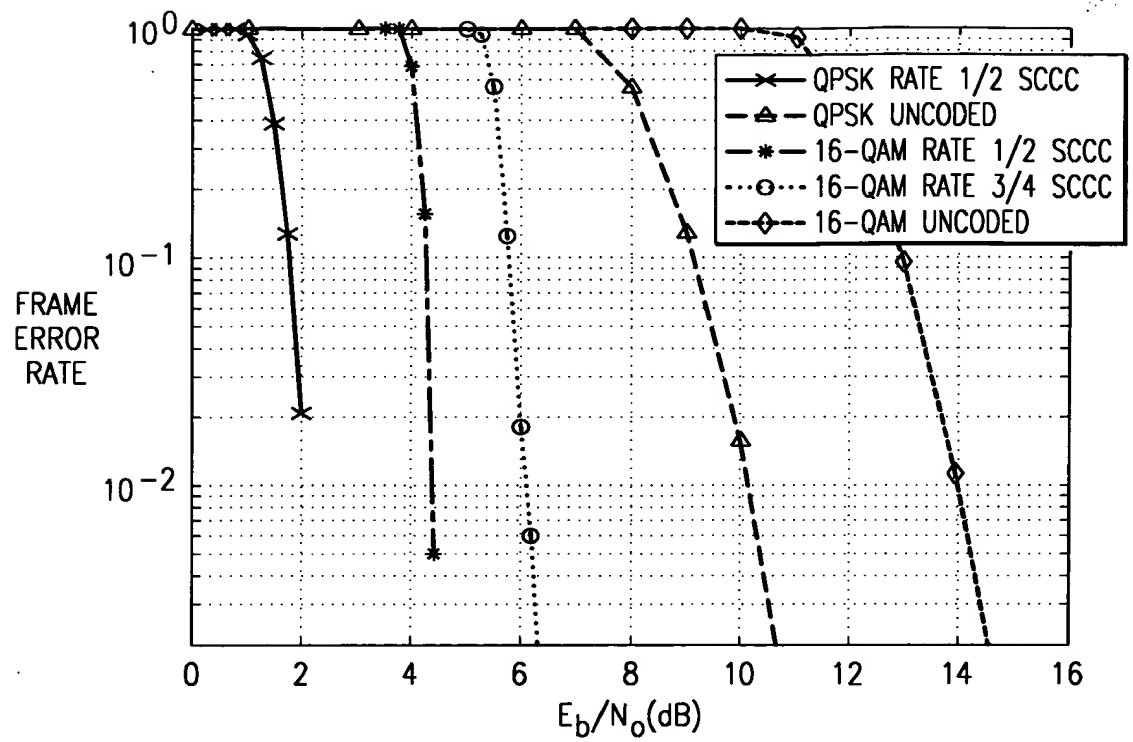


FIG. 38

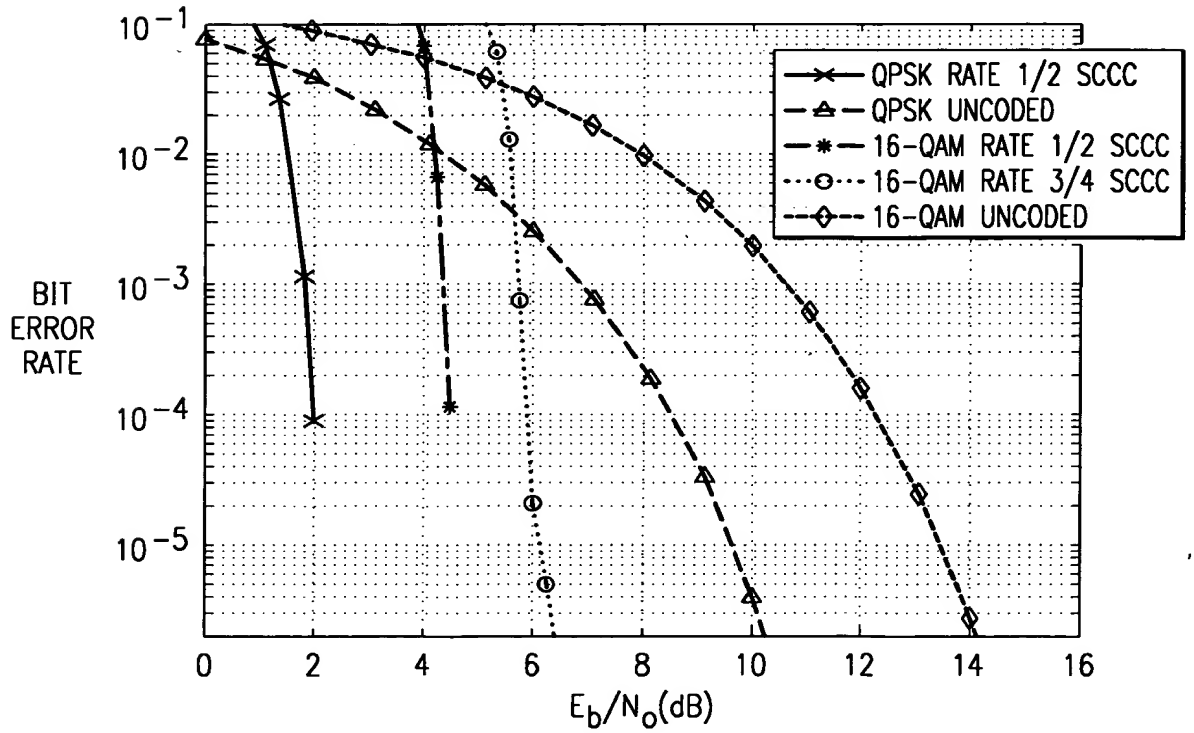


FIG. 39

TI-31284 EP02276760

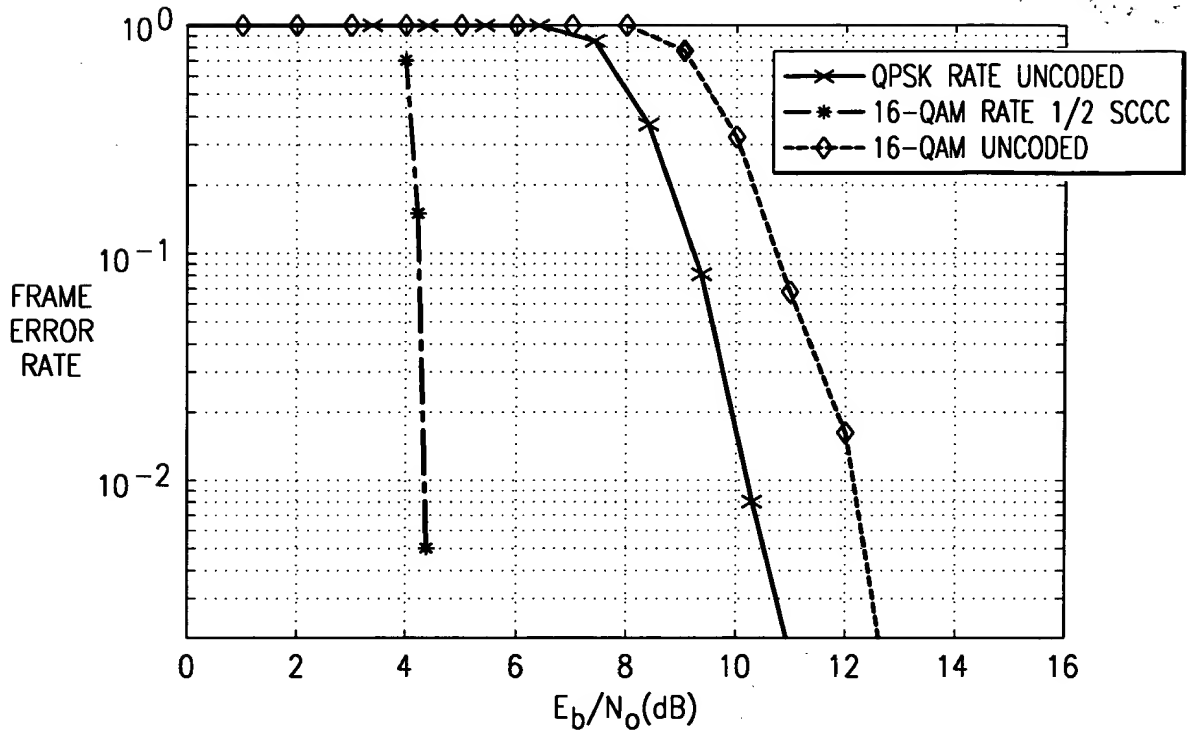


FIG. 40

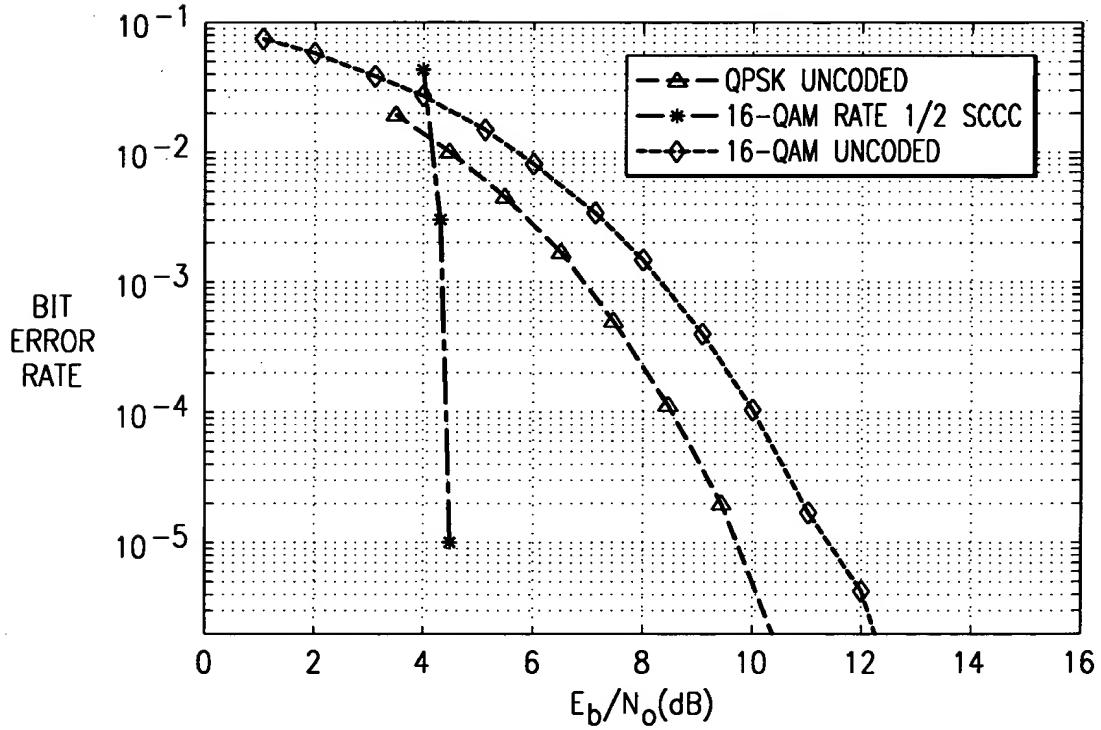


FIG. 41

EP 1 237 340 A2 20020904

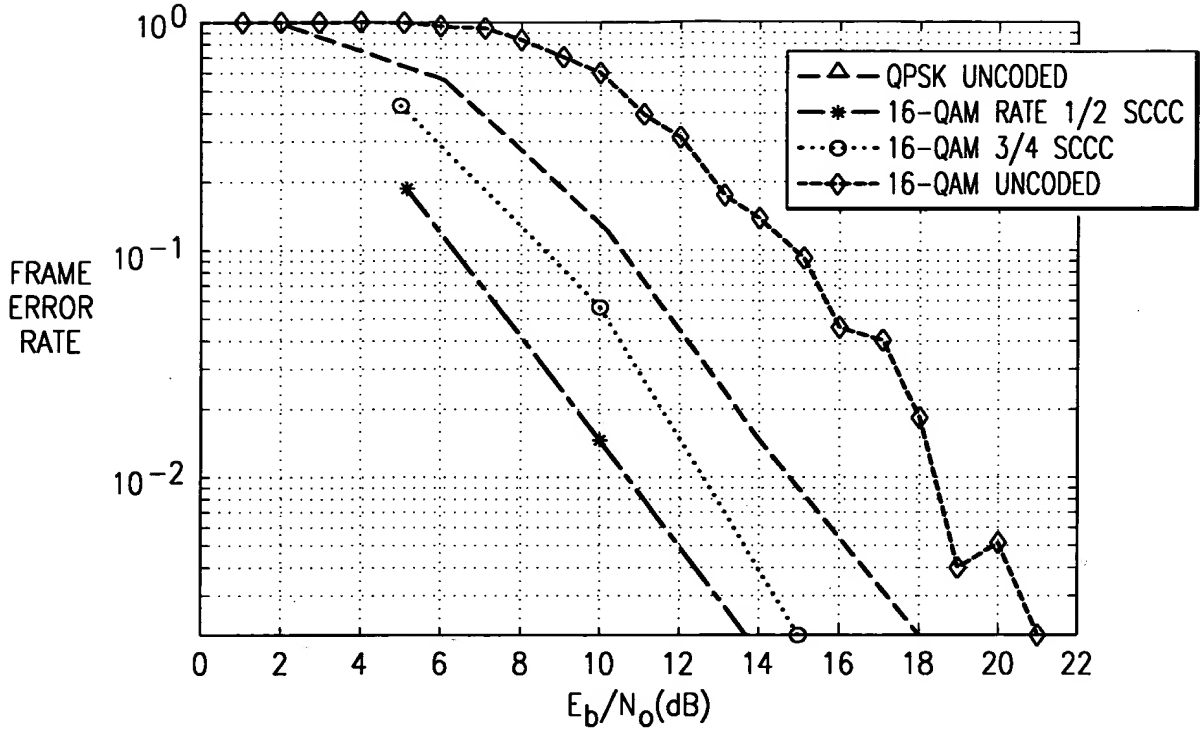


FIG. 42

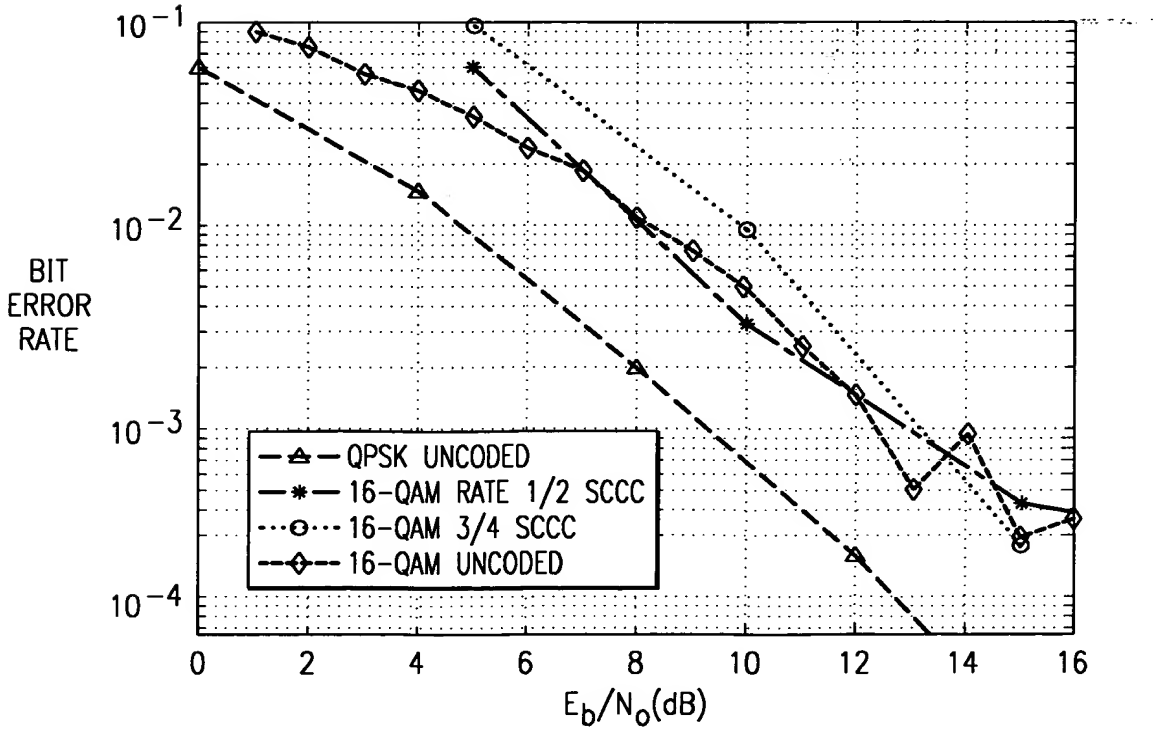


FIG. 43

EP 1 024 626 A2

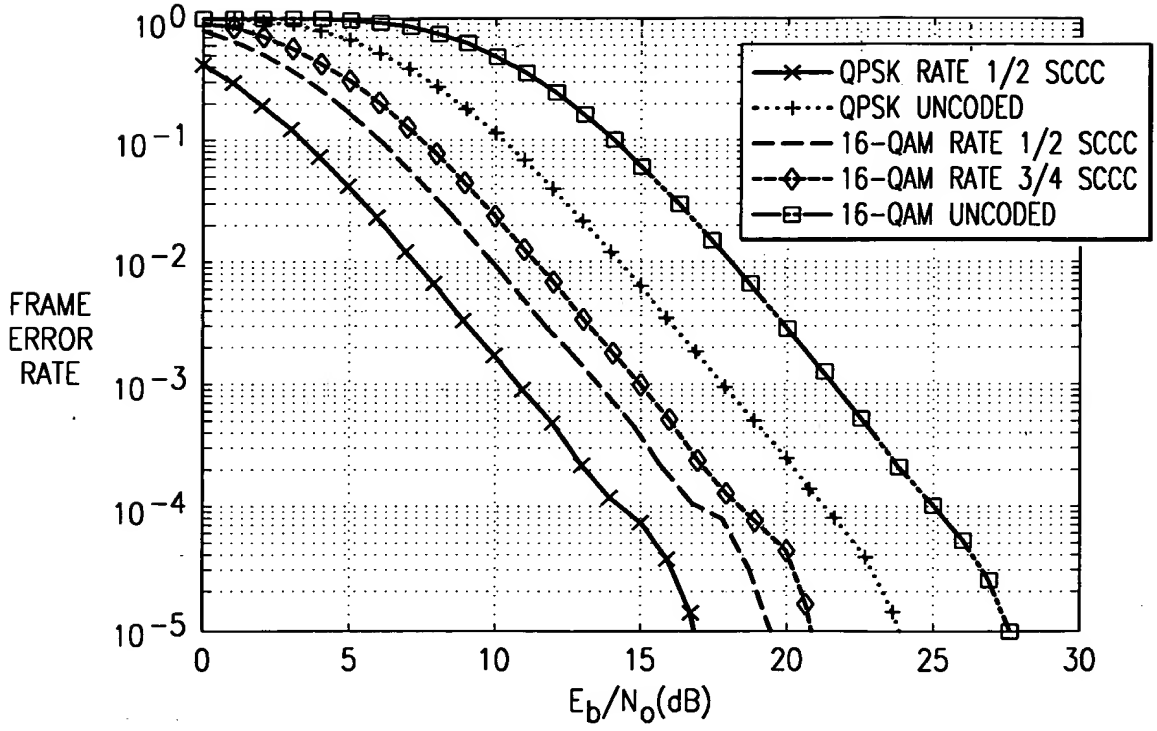

FRAME ERROR RATE
10^0
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
5
10
15
20
25
30
E_b/N_o(dB)
QPSK RATE 1/2 SCCC
QPSK UNCODED
16-QAM RATE 1/2 SCCC
16-QAM RATE 3/4 SCCC
16-QAM UNCODED

FIG. 44